

REMARKS

In the Office Action, claims 1-4 and 7-21 are rejected, and claims 5-6 are objected to. Reconsideration and allowance of all pending claims are requested.

Objection to Claims

The Office Action summarizes claims 5-6 as objected to as being dependent on a rejected base claim. Claims 5 and 6 depend directly or indirectly from independent claim 1. Applicants' respectfully submit that independent claim 1 is in condition for allowance according to the arguments presented below.

Rejections Under 35 U.S.C. §103

The Office Action summarizes claims 1, 4 and 13 as rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,522,882, Chen et al. (hereinafter "Chen") in view of U.S. Patent Application 2002/0059535, Bekritsky et al. (hereinafter, "Bekritsky"). All of the claims are believed to be patentable over both references for the reasons summarized below.

Claim 1 recites a method for determining a location of an object within an area of interest that includes transmitting an RF signal from the object to at least three receivers, transmitting a signal from at least one beacon transmitter to the at least three receivers, the at least one beacon transmitter being at a known location. Claim 1 further recites *calculating, at each of the at least three receivers, time difference of arrival information based on the signal from the at least one beacon transmitter and the RF signal transmitted from the object*, and determining a location of the object within the area of interest based on the time difference of arrival information. Claim 13 recites a system for determining the location of an object within an area of interest and includes recitations essentially similar to those of in claim 1.

Chen fails to teach a beacon transmitter at a known location.

Chen teaches transmitting a beacon signal *from a mobile transceiver* to determine its location—the mobile transceiver, as the source of the beacon, is never in a known location. The Examiner admitted in the Office Action that the mobile transceiver of Chen is not in a known location. Because the mobile transceiver 18 is not in a known location, the mobile transceiver 18 cannot qualify as the beacon transmitter, as recited in claim 1 and claim 13 of the present application. Furthermore, Chen discloses that calculating the location of the mobile transceiver 18 is based on the respective location of each of the receiving cell sites 14 and the respective times at which the beacon signal was received at each of the receiving plurality of cell sites 14. It is also noted that the calculation is performed at the mobile telephone switching office 12, rather than multiple receivers as recited in claims 1 and 13 of the present application. Chen only discloses the use of RF signals for telephony communication, and never for use in conjunction with a beacon signal for determining time difference of arrival for location of the transceiver.

Bekritsky's beacon transmitter signal is not used to determine a time difference of arrival signal in conjunction with a signal from the object to be located.

Bekritsky fails to obviate the deficiencies in the teachings of Chen. Bekritsky teaches a completely different system that uses a fixed beacon transmitter *to synchronize clocks at the receivers*. Bekritsky determines the location of the object by simply *comparing the time difference of arrival for at least two pairs of receiving stations*, and then plotting a hyperbolic trilateration (*See*, paragraph 24). The location of the object is not determined by calculating the time difference of arrival based on the signal from at least one beacon transmitter and the RF signal transmitted from the object as recited in claims 1 and 13 of the present application. Therefore, the beacon transmitter of Bekritsky is not comparable to the beacon transmitter of the present application.

Thus, any combination of Chen and Bekritsky would necessarily lack the calculation of a time difference of arrival based on a signal from a beacon transmitter at a known location as recited in claims 1 and 13 respectively. Consequently, the combination of Chen nor Bekritsky simply cannot render obvious all the recitations of claims 1 and 13.

The Examiner has advanced no reasonable motivation or suggestion to combine the references.

In the Office Action, the Examiner asserted that it would have been obvious to modify the system of Chen, apparently with a stationary beacon transmitter of Bekritsky “for the advantage of precisely locating a device.” Applicants submit that the references provide no reasonable basis for such combination, and that the combination is, in fact, unworkable.

Firstly, upon reading either Chen or Bekritsky, one skilled in the art would assume that either system would work adequately for locating a mobile device. The two references simply take a different approaches to such location. As noted above, Chen relies upon signals only from the mobile device, whereas Bekritsky relies upon synchronized clocks that permit direct comparison of signals between a mobile device and receiver stations, with no reference whatsoever to the time of arrival of a fixed beacon signal to a receiver station. Accordingly, the motivation summarized by the Examiner in the conclusory statement made in the Office Action is simply not reasonable in view of the teachings of the references themselves.

Applicants further submit that the combination proposed by the Examiner is not reasonable. That is, the fixed beacon transmitter of Bekritsky could only serve the purpose taught by Bekritsky. That purpose is to synchronize clocks at the receiver stations. Even with the offset in the clock signal as taught by Bekritsky, then, the Chen reference would still employ signals from the mobile device for location of the mobile device. Apparently

the combination proposed by the Examiner would result in Chen relinquishing the use of the mobile device beacons. That is, location of mobile devices by signals from the mobile devices themselves, and replace these signals by signals from a fixed beacon transmitter of Bekritsky. Again, however, the beacon signals of Bekritsky are not used as a basis for determining a time difference of arrival signal in conjunction with signals from an object to be located. Accordingly, even if combined, the resulting system would not function as does the claimed method and system. The modification to have the Bekritsky beacon signals used as claimed is unsupported by the references, and *would be counter to the teachings of both*.

In view of the following deficiencies in the teachings of the cited art, the Examiner has failed to establish a *prima facie* case of obviousness of claim 1 and claim 13. These claims and the claims depending therefrom are therefore believed to be clearly patentable over the cited combination. Their reconsideration and allowance are respectfully requested.

Rejections dependent claims under 35 U.S.C. §103

The Office Action further summarizes claims 2-3, 7-12 and 14-21 as rejected under 35 U.S.C. §103(a) as being unpatentable over Chen in view of Bekritsky and further in view of U.S. Patent 6,466,125, Richards et al. (hereinafter, "Richards").

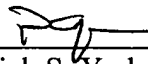
The claims rejected under this section all depend directly or indirectly from independent claims 1 and 13 discussed above. The Richards reference is not believed to obviate the deficiencies of Chen and Bekritsky discussed above, particularly regarding the use of a beacon transmitter. Consequently, all of the dependent claims are believed to be patentable both by virtue of their dependency from an allowable base claim, as well as for the subject matter they separately recite. Reconsideration and allowance of all of the dependent claims on this basis are requested.

Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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